REMARKS

In the Office Action, claims 1-20 were rejected. All of the pending claims are believed to be allowable over the prior art references cited by the Examiner. Reconsideration and allowance of all pending claims are respectfully requested in view of the arguments summarized below.

Rejections Under 35 U.S.C. § 103

In the Office Action, claims 1-8 and 12-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fang et al., "Smoothing Random Noise from Human Head Scan Data" (hereinafter "Fang") in view of Fisher et al., "A Comparison of Algorithms for Subpixel Peak Detection" (hereinafter "Fisher"). Claims 9-11 and 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fang in view of Fisher and further in view of Trucco et al., "Acquisition of Consistent Range Data using Local Calibration" (hereinafter "Trucco"). Applicants respectfully assert that the present invention, as recited in independent claims 1, 12 and 17 is patentable over Fang, Fisher and Trucco, alone or in combination.

Claims 1 and 12 and the Claims Depending Therefrom.

Independent claims 1 and 12 recites, *inter alia*, generating a matched filter for each pixel in said image, filtering said image with said generated matched filter, and identifying the center of said projected laser stripes in said filtered image.

Even in combination Fang and Fisher fail to disclose all the elements recited in independent claims 1 and 12.

Applicant respectfully assert that Fang and Fisher, alone or in combination, fail to disclose a matched filter such as that described in the present application. Further, Fang and Fisher, alone or in combination, fail to disclose identifying center of the projected laser stripes in the filtered image.

Fang fails to disclose the matched filter.

The Fang reference discloses a smoothing techniques using one-dimensional Gaussian filter applied on a one-dimensional signal. *See*, Fang, page 103, column 1, paragraph 5, and equation 2; *see* also, Fang, page 103, column 2, paragraph 1 and equation 3. Further, Fang describes a two-dimensional continuous Gaussian filter as a combination of two one-dimensional kernels that are separable and can be implemented as such on a two-dimensional signal. *See*, Fang, page 103, column 2, paragraph 2. However, Fang fails to teach, disclose or suggest *a two-dimensional locally matched filter generated for each point in an image.*

Applicants respectfully submit that the two-dimensional matched filter described in the application is generated in two passes and is responsive to the original image. Applicants also submit that, a single pass approach may also be used by employing a single two-dimensional filter. Alternatively, separable one-dimensional filters which are non-Gaussian may also be employed. *See* Application (in its published form, U.S. 2003/0113020 A1), paragraph 18-23 and paragraph 25. Clearly, the matched filters described in the application are not same as the one-dimensional Gaussian filter or the separable two-dimensional continuous Gaussian Filter described in Fang.

Applicants note that the other cited references were not relied upon by the Examiner for teaching such a matched filter, and indeed fail to do so. Consequently, the absence of the recited matched filter from Fang implies that any combination of Fang with the other references necessarily would not include such a filter.

Fischer fails to disclose identifying the center of the projected laser stripes in the filtered image.

Fischer discloses determining peak image position of an image line or stripe to subpixel accuracy. *See*, page 1, Abstract, and paragraph 1. Clearly, this is not same as identifying a *center* of a stripe as claimed. The Examiner stated that peak is the center,

since laser stripe has a Gaussian distribution. Applicants respectfully submit that if the laser stripe is corrupted (as in the problematical cases addressed by the claimed invention), then laser stripe will not have Gaussian distribution at all and the peak may not be the center of the laser stripe as stated by the Examiner.

Accordingly, in the very cases addressed by the invention, the assumption made by the Examiner does not hold. Consequently, Fisher does not teach identifying a center of a laser stripe as claimed. Any combination proposed by the Examiner would, then, be defective in this respect as well.

There is no suggestion or motivation to combine Fang and Fisher.

Fang requires acquiring two separate images so that any surface that might be obscured in one image is provided by the other image. *See*, Fang, page 102, column 1, paragraph 4. Thus there is no need to modify the contour of the laser stripes based on the identification of center. That is, any information missing in any corrupted or discontinuous stripe would apparently be provided by another view in the technique taught by Fang. Moreover, even if Fisher provided identifying center of the laser stripes (which Applicants contend it does not), there is no reason to combine the identification method so as to modify the contour of the laser stripes in Fang. Again, if at all the laser stripe in Fang is discontinuous, it could be corrected or completed by reference to the other image acquired by Fang.

Hence Fang and Fisher, alone or in combination, do not teach, suggest or disclose each and every aspect of the invention as recited in the independent claims 1 and 12. The reference therefore cannot support a *prima facie* case of obviousness of claims 1 and 12.

Claims 2-11 and 13-16 depend directly or indirectly from claims 1 and 12 respectively. Accordingly, Applicants submit that claims 2-11 and 13-16 are allowable by virtue of their dependency from an allowable base claim. Applicants also submit that

the dependent claims are further allowable by virtue of the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 1-16 under 35 U.S.C. §103(a) be withdrawn.

Claim 17 and the Claims Depending Therefrom.

Independent claim 17 recites, *inter alia*, identifying incoherent pixels or no pixels in the projected laser stripes, and determining one or more corrupted laser stripes in the image based on the identification. Fang and Fisher fail to teach, disclose or suggest identification of incoherent pixels or no pixels in the projected laser stripes, and determination one or more corrupted laser stripes in the image based on the identification.

The Examiner relied upon Tuccor to obviate the above deficiencies in the teachings of Fang and Fisher, and cited a passage from Tuccor at page 3, column 2, paragraph 2 to support the same. However, Applicants respectfully assert that the phenomena described by Tuccor in the cited passage in no way relates to determination of corrupted laser stripes based on the identification of incoherent pixels or no pixels in the projected laser stripes. In the cited passage Tuccor describes the phenomena of *reflections from specular surfaces that results in spurious range values,* and thus suggest to *discard these spurious values based on certain constraints*. Clearly, this has nothing to do with identification of incoherent pixels or no pixels in the projected laser stripes and determination of corrupted laser stripes based on the identification.

Further, as discussed above, even if corrupted laser stripes were present and could be identified by Tuccor, Fang does not require any method of determining such corrupted laser stripes. If at all the laser stripe in Fang is discontinuous, it could be located by looking at the other image acquired by Fang.

The combination proposed by the Examiner would not, then include all of the recitations of claim 17 or its dependent claims. Moreover, the references cannot be

logically combined as proposed, as Fang clearly does not support the combination. The references cannot, therefore, support a *prima facie* case of obviousness of claim 17 or its dependent claims.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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